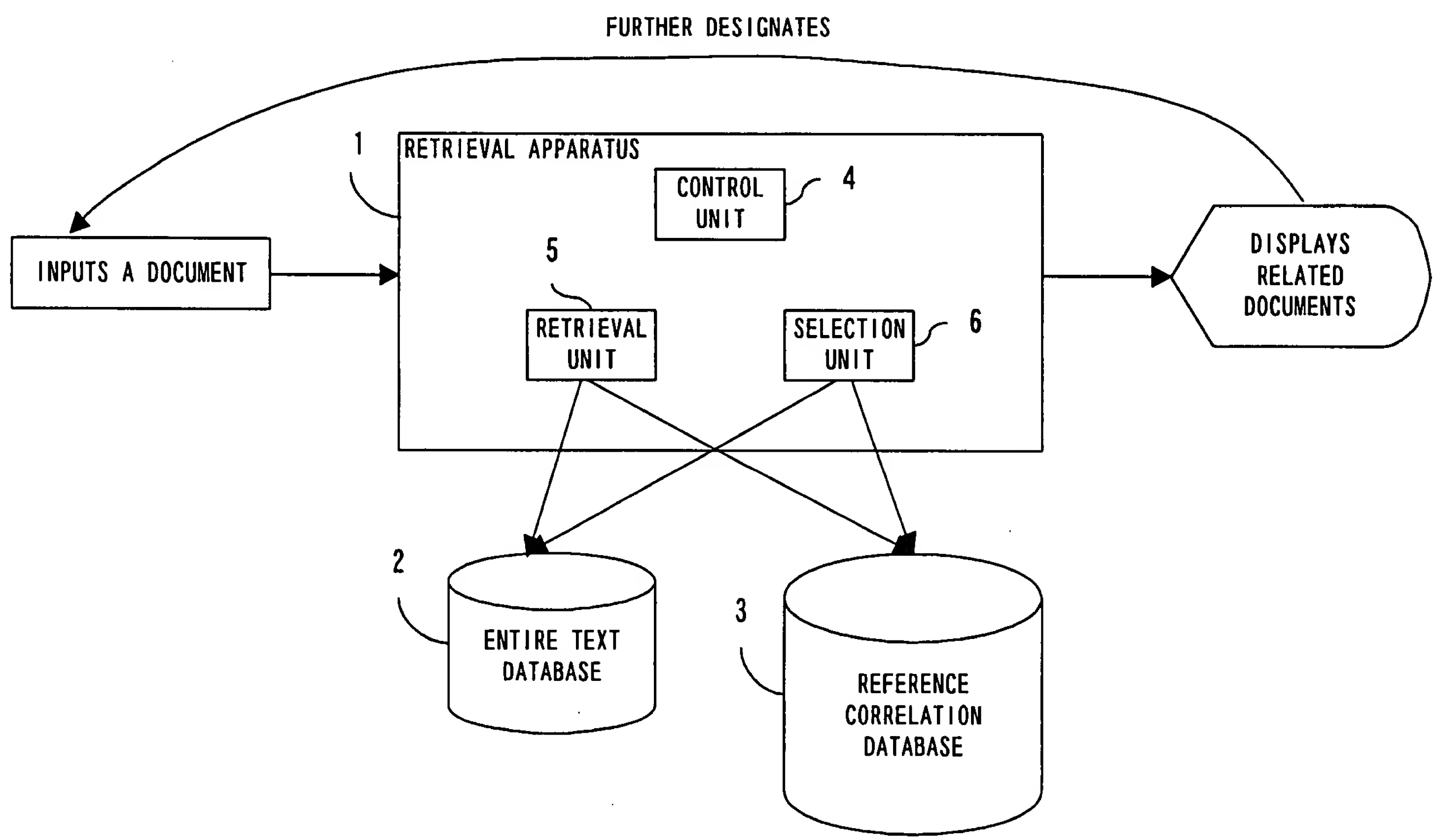

FURTHER DESIGNATES
1
RETRIEVAL APPARATUS
CONTROL UNIT
4
5
RETRIEVAL UNIT
SELECTION UNIT
6
INPUTS A DOCUMENT
DISPLAYS RELATED DOCUMENTS
2
ENTIRE TEXT DATABASE
3
REFERENCE CORRELATION DATABASE

F I G. 1 A

INPORTANT DOCUMENT (SIMILAR REFERENCE, COMMON REFERENCE)
Aone, C. and Bennett, S. W. (1995)".... Byron, D. and Stent, A. (1998)".... Dohsaka, K. (1990)"

FIG. 1B

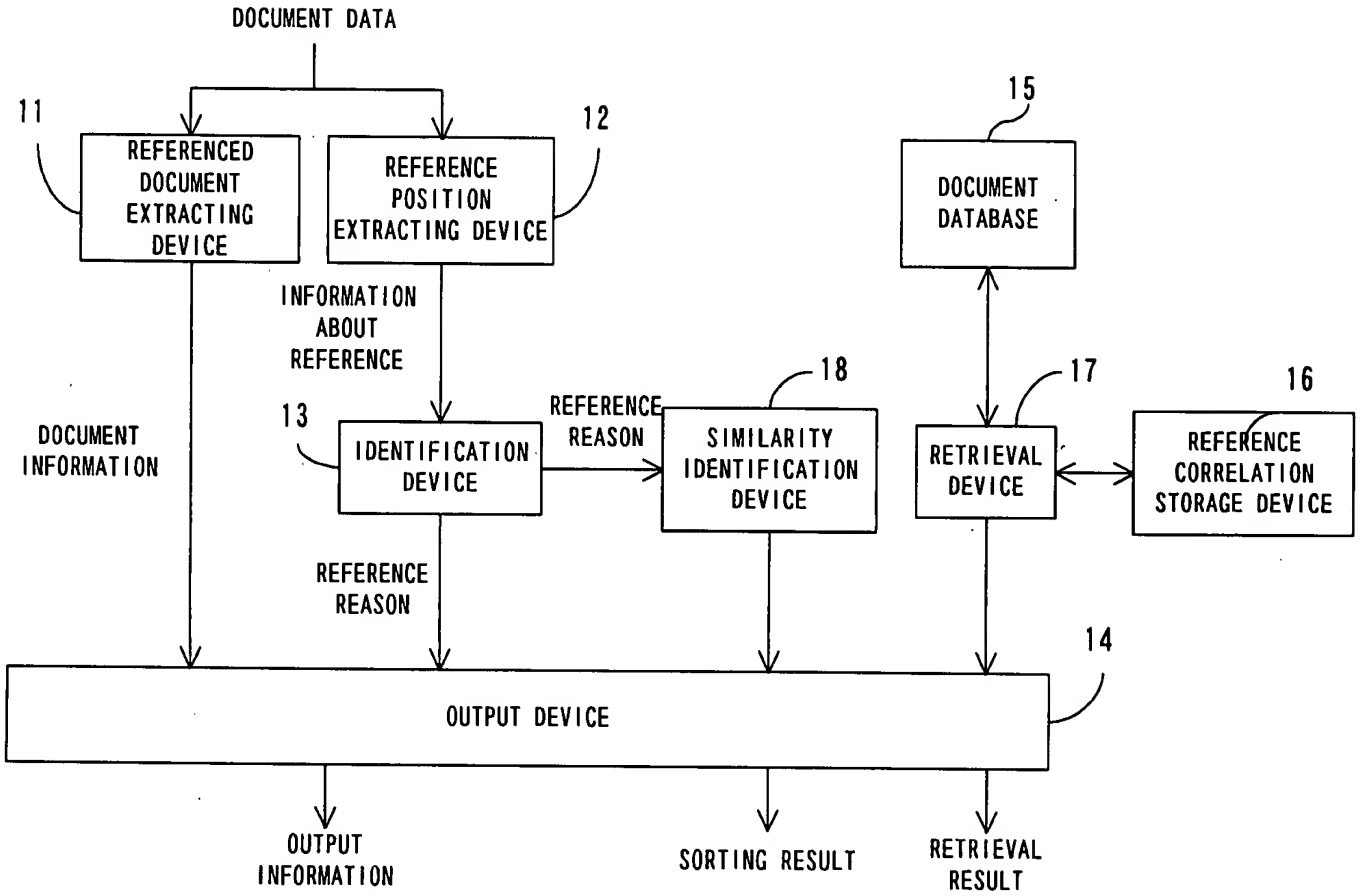


FIG. 2A

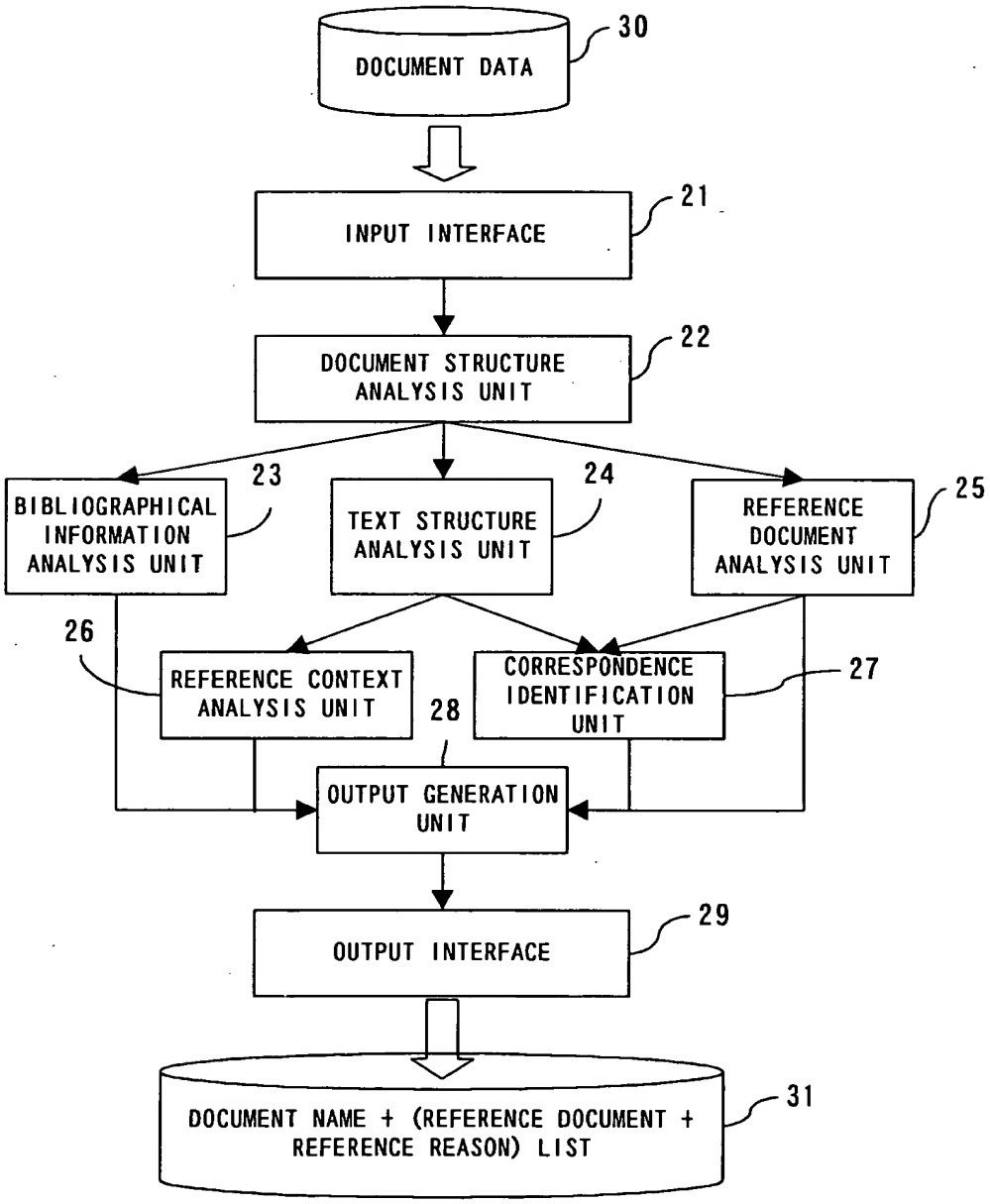

DOCUMENT DATA
30
INPUT INTERFACE
21
DOCUMENT STRUCTURE ANALYSIS UNIT
22
BIBLIOGRAPHICAL INFORMATION ANALYSIS UNIT
23
TEXT STRUCTURE ANALYSIS UNIT
24
REFERENCE DOCUMENT ANALYSIS UNIT
25
26
REFERENCE CONTEXT ANALYSIS UNIT
28
CORRESPONDENCE IDENTIFICATION UNIT
27
OUTPUT GENERATION UNIT
OUTPUT INTERFACE
29
DOCUMENT NAME + (REFERENCE DOCUMENT + REFERENCE REASON) LIST
31

FIG. 2B

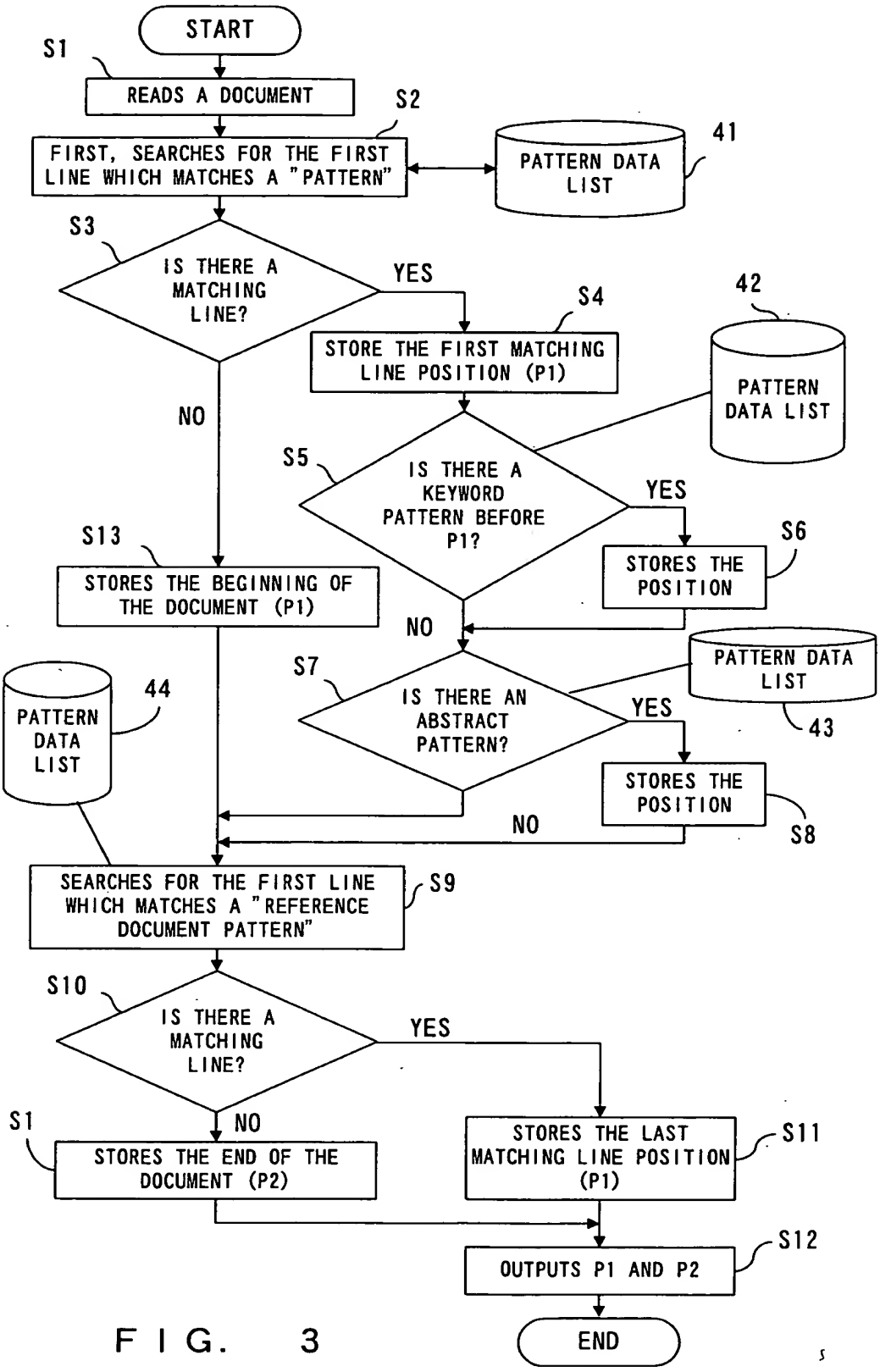

START
S1
READS A DOCUMENT
S2
FIRST, SEARCHES FOR THE FIRST LINE WHICH MATCHES A "PATTERN"
41
PATTERN DATA LIST
S3
IS THERE A MATCHING LINE?
YES
S4
STORE THE FIRST MATCHING LINE POSITION (P1)
42
PATTERN DATA LIST
NO
S5
IS THERE A KEYWORD PATTERN BEFORE P1?
YES
S6
STORES THE POSITION
S13
STORES THE BEGINNING OF THE DOCUMENT (P1)
NO
S7
IS THERE AN ABSTRACT PATTERN?
PATTERN DATA LIST
43
YES
44
PATTERN DATA LIST
STORES THE POSITION
S8
NO
SEARCHES FOR THE FIRST LINE WHICH MATCHES A "REFERENCE DOCUMENT PATTERN"
S9
S10
IS THERE A MATCHING LINE?
YES
S1
NO
STORES THE END OF THE DOCUMENT (P2)
STORES THE LAST MATCHING LINE POSITION (P1)
S11
S12
OUTPUTS P1 AND P2
END

FIG. 3

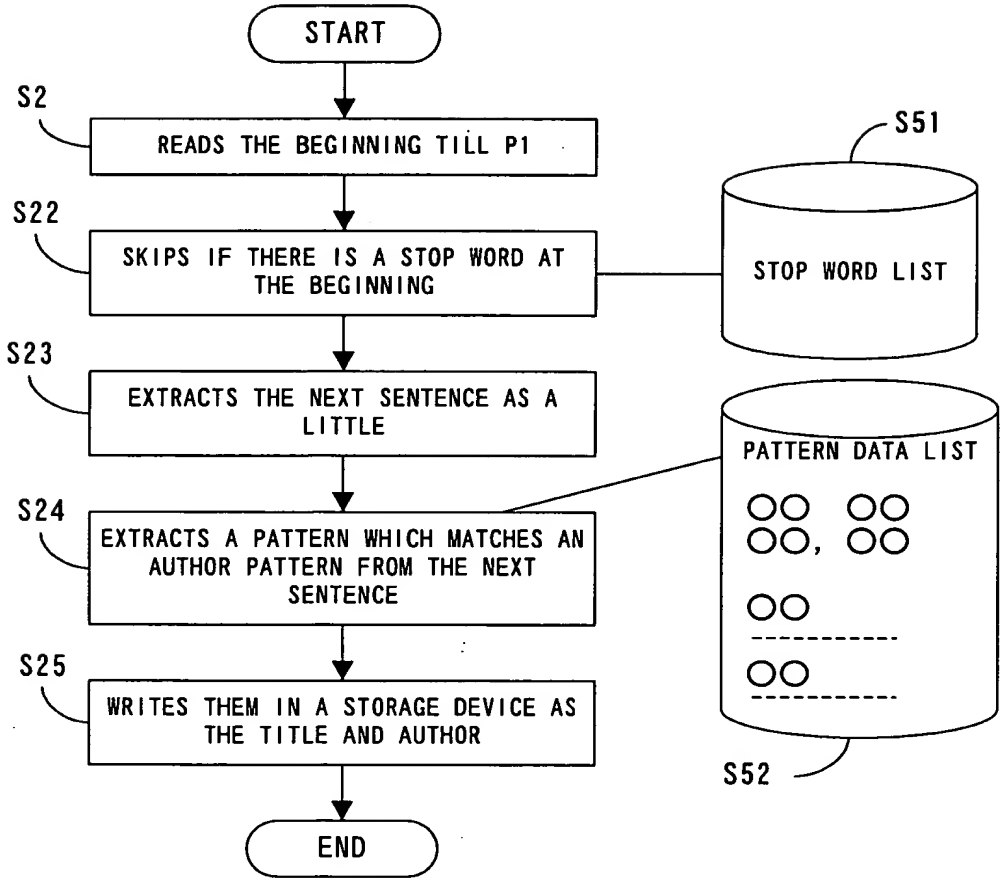

START
S2
READS THE BEGINNING TILL P1
S22
SKIPS IF THERE IS A STOP WORD AT THE BEGINNING
S23
EXTRACTS THE NEXT SENTENCE AS A LITTLE
S24
EXTRACTS A PATTERN WHICH MATCHES AN AUTHOR PATTERN FROM THE NEXT SENTENCE
S25
WRITES THEM IN A STORAGE DEVICE AS THE TITLE AND AUTHOR
END
S51
STOP WORD LIST
PATTERN DATA LIST
OO OO
OO, OO
OO
OO
S52

FIG. 4

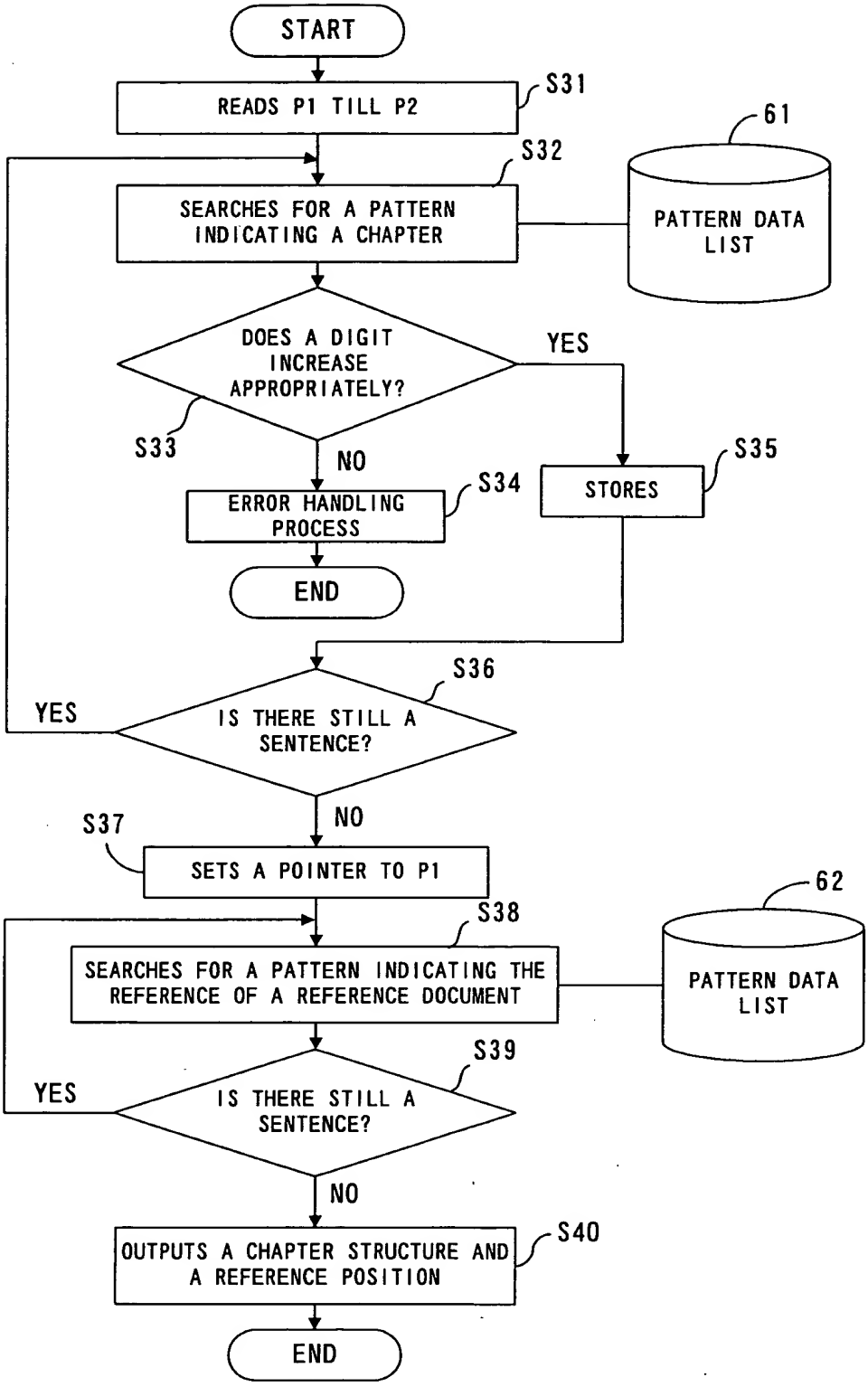

START
READS P1 TILL P2
S31
61
S32
SEARCHES FOR A PATTERN INDICATING A CHAPTER
PATTERN DATA LIST
DOES A DIGIT INCREASE APPROPRIATELY?
YES
S33
NO
S35
STORES
S34
ERROR HANDLING PROCESS
END
S36
YES
IS THERE STILL A SENTENCE?
NO
S37
SETS A POINTER TO P1
62
S38
SEARCHES FOR A PATTERN INDICATING THE REFERENCE OF A REFERENCE DOCUMENT
PATTERN DATA LIST
S39
YES
IS THERE STILL A SENTENCE?
NO
S40
OUTPUTS A CHAPTER STRUCTURE AND A REFERENCE POSITION
END

FIG. 5

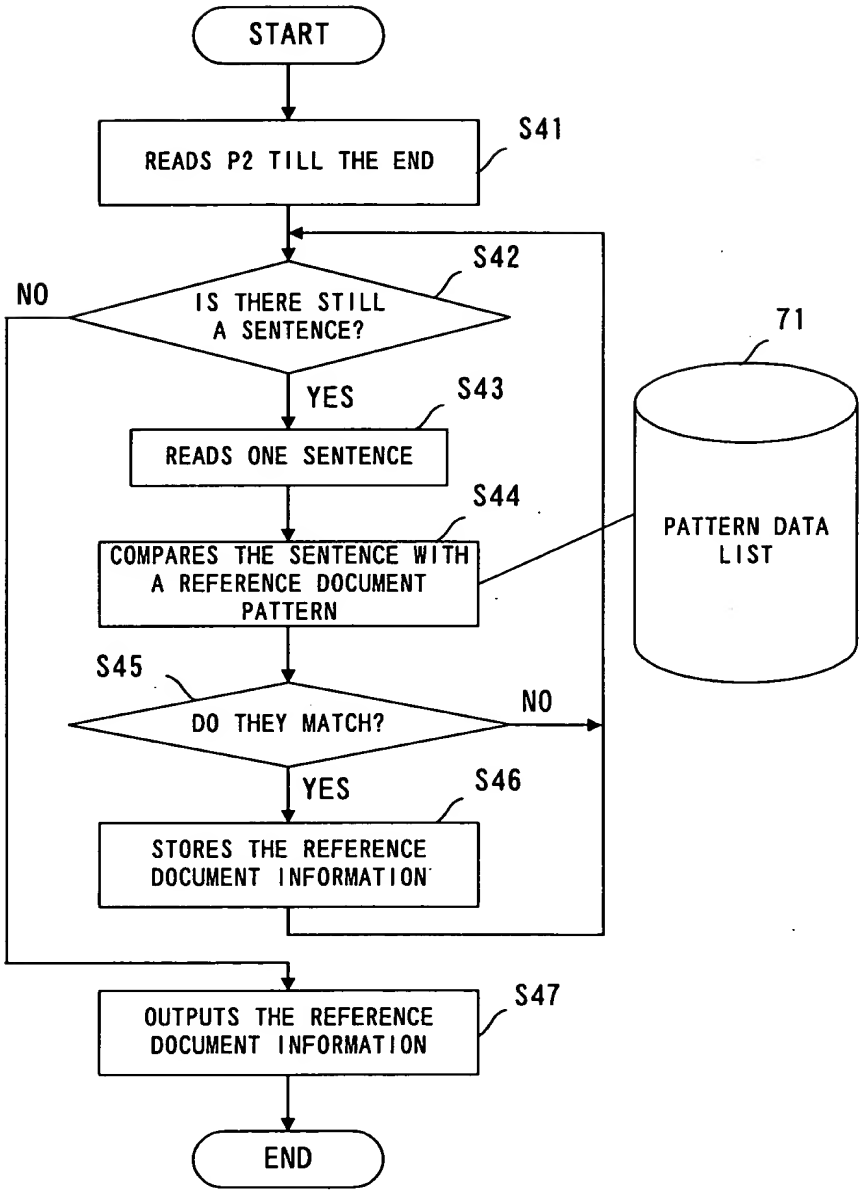

START
READS P2 TILL THE END
S41
S42
NO
IS THERE STILL A SENTENCE?
71
YES
S43
READS ONE SENTENCE
S44
COMPARES THE SENTENCE WITH A REFERENCE DOCUMENT PATTERN
PATTERN DATA LIST
S45
DO THEY MATCH?
NO
YES
S46
STORES THE REFERENCE DOCUMENT INFORMATION
OUTPUTS THE REFERENCE DOCUMENT INFORMATION
S47
END

FIG. 6

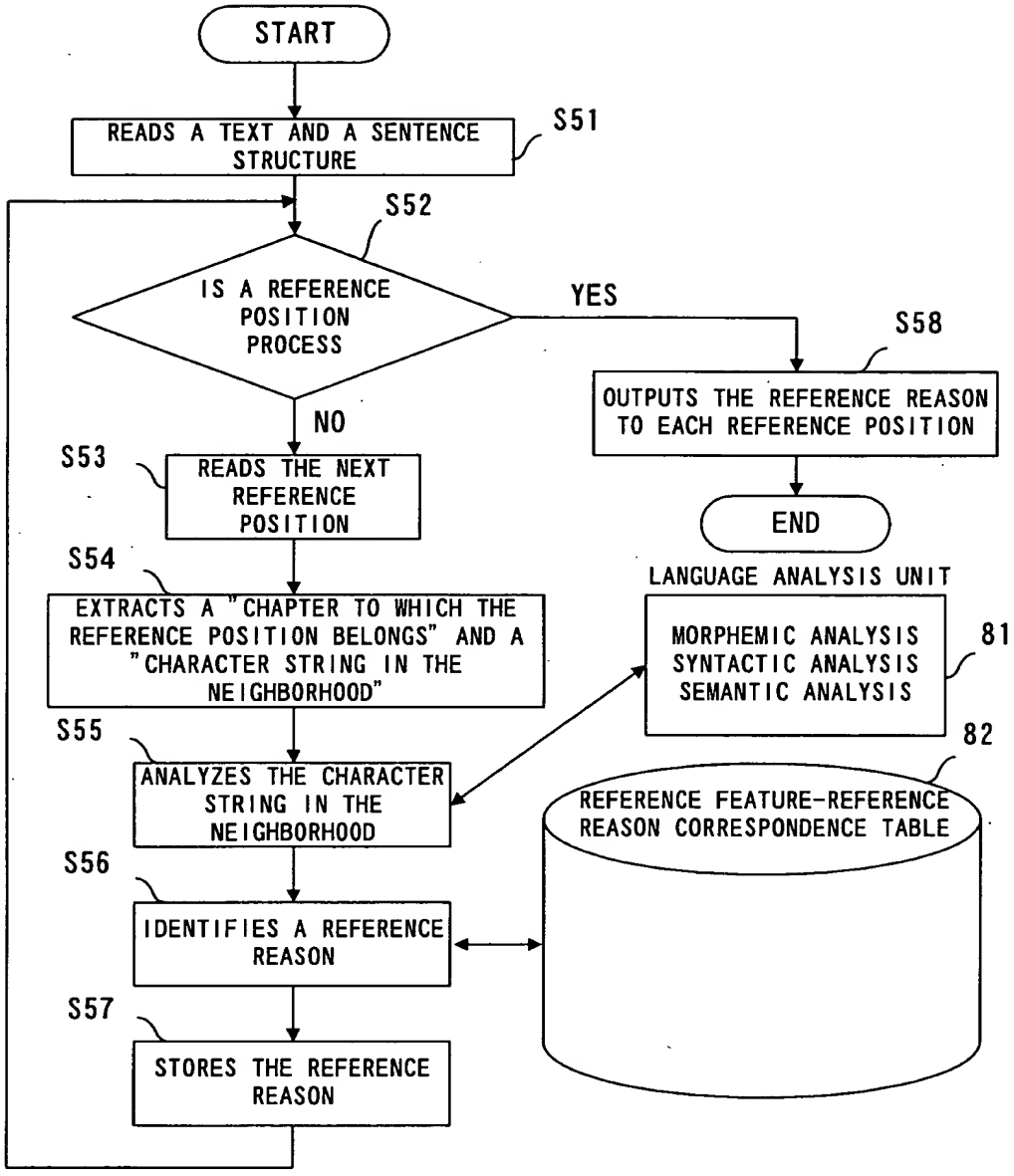
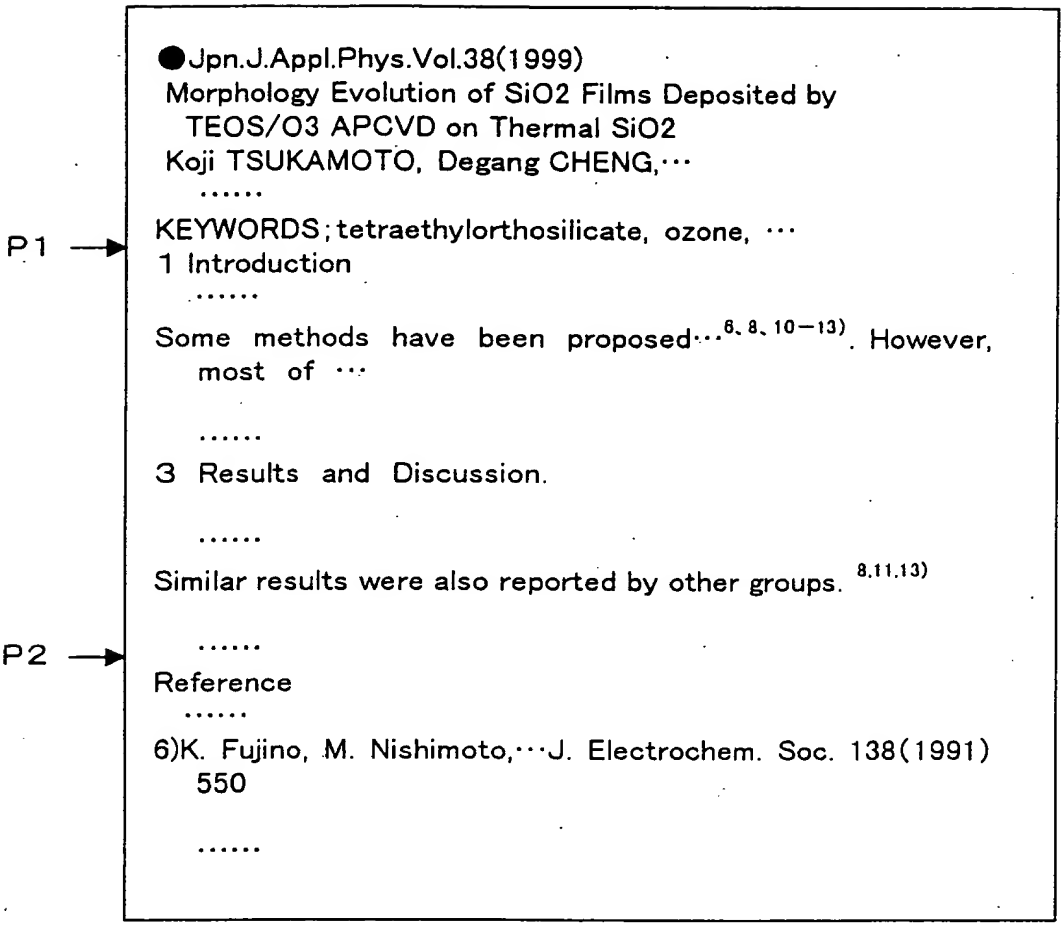

START
READS A TEXT AND A SENTENCE STRUCTURE
S51
S52
IS A REFERENCE POSITION PROCESS
YES
S58
OUTPUTS THE REFERENCE REASON TO EACH REFERENCE POSITION
END
NO
S53
READS THE NEXT REFERENCE POSITION
S54
EXTRACTS A "CHAPTER TO WHICH THE REFERENCE POSITION BELONGS" AND A "CHARACTER STRING IN THE NEIGHBORHOOD"
S55
ANALYZES THE CHARACTER STRING IN THE NEIGHBORHOOD
S56
IDENTIFIES A REFERENCE REASON
S57
STORES THE REFERENCE REASON
LANGUAGE ANALYSIS UNIT
MORPHEMIC ANALYSIS
SYNTACTIC ANALYSIS
SEMANTIC ANALYSIS
81
82
REFERENCE FEATURE-REFERENCE REASON CORRESPONDENCE TABLE

FIG. 7



(Koji Tsukamoto et. al. (1999), *Morphology Evolution of SiO2 Films Deposited by TEOS/O3 APCVD on Thermal SiO2*, Jpn. J. Appl. Phys.)

FIG. 8

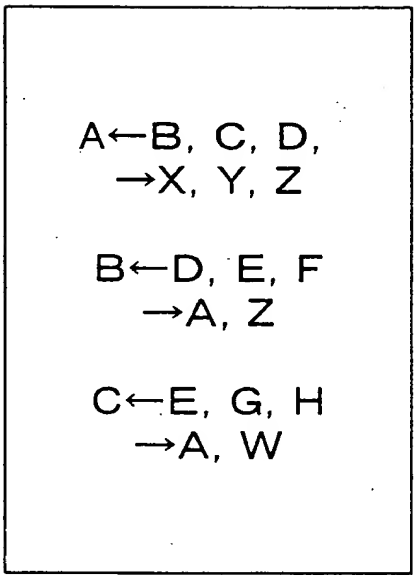


FIG. 9

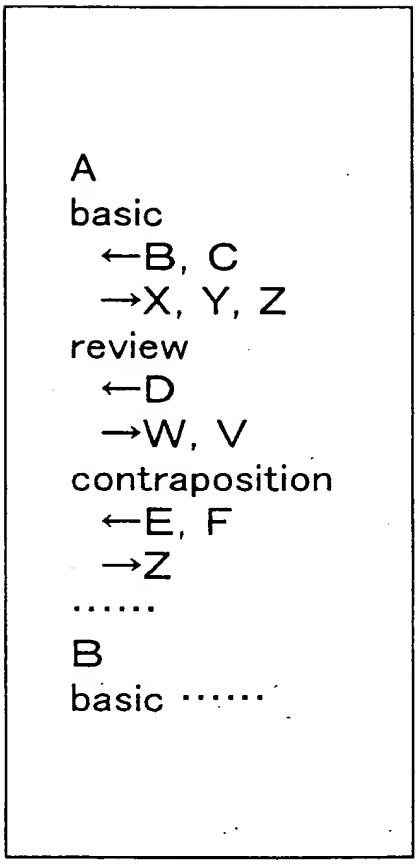
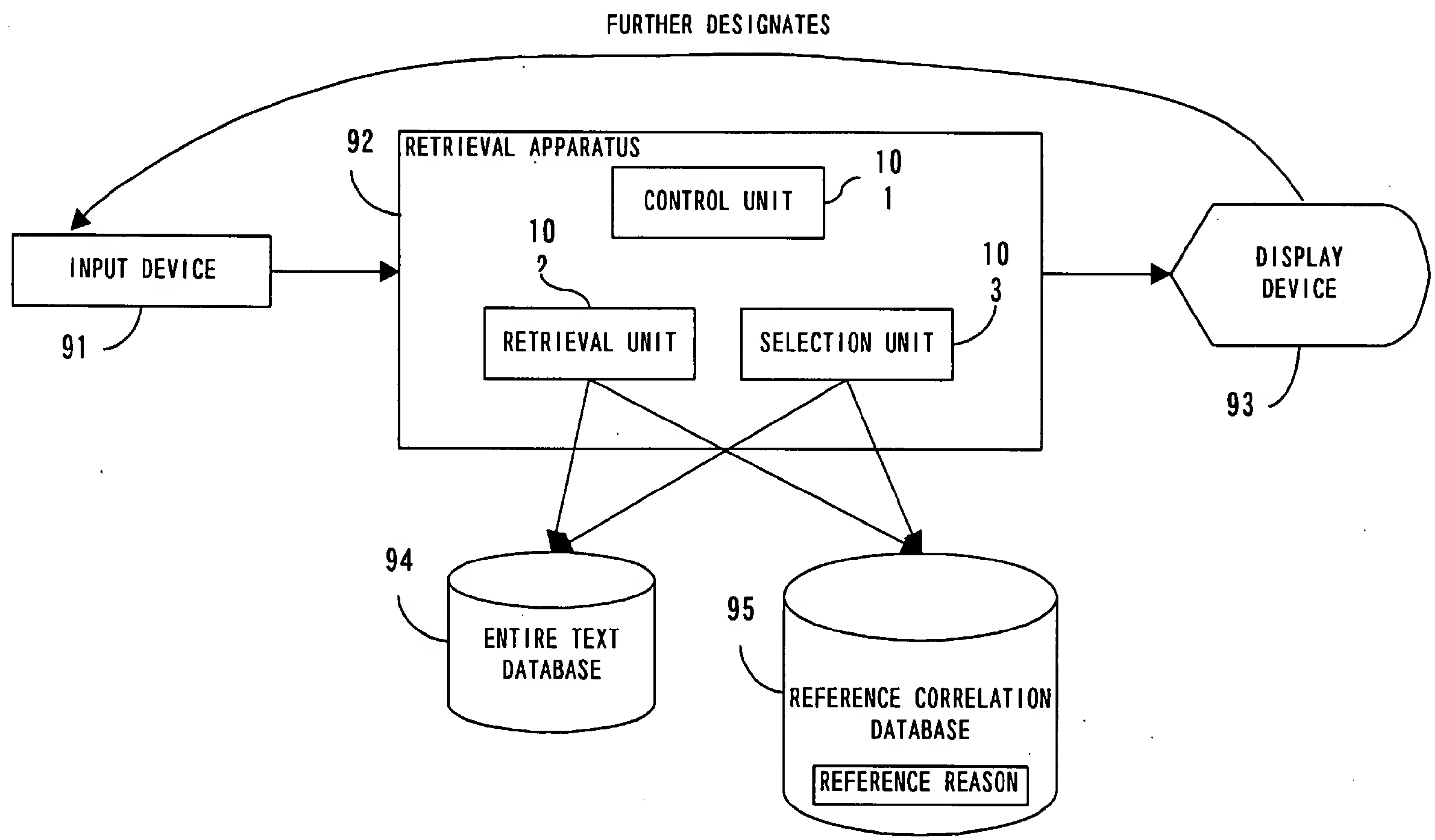


FIG. 10


FURTHER DESIGNATES
92
RETRIEVAL APPARATUS
CONTROL UNIT
10
1
10
2
INPUT DEVICE
91
RETRIEVAL UNIT
10
3
SELECTION UNIT
DISPLAY
DEVICE
93
94
ENTIRE TEXT
DATABASE
95
REFERENCE CORRELATION
DATABASE
REFERENCE REASON

F I G. 11

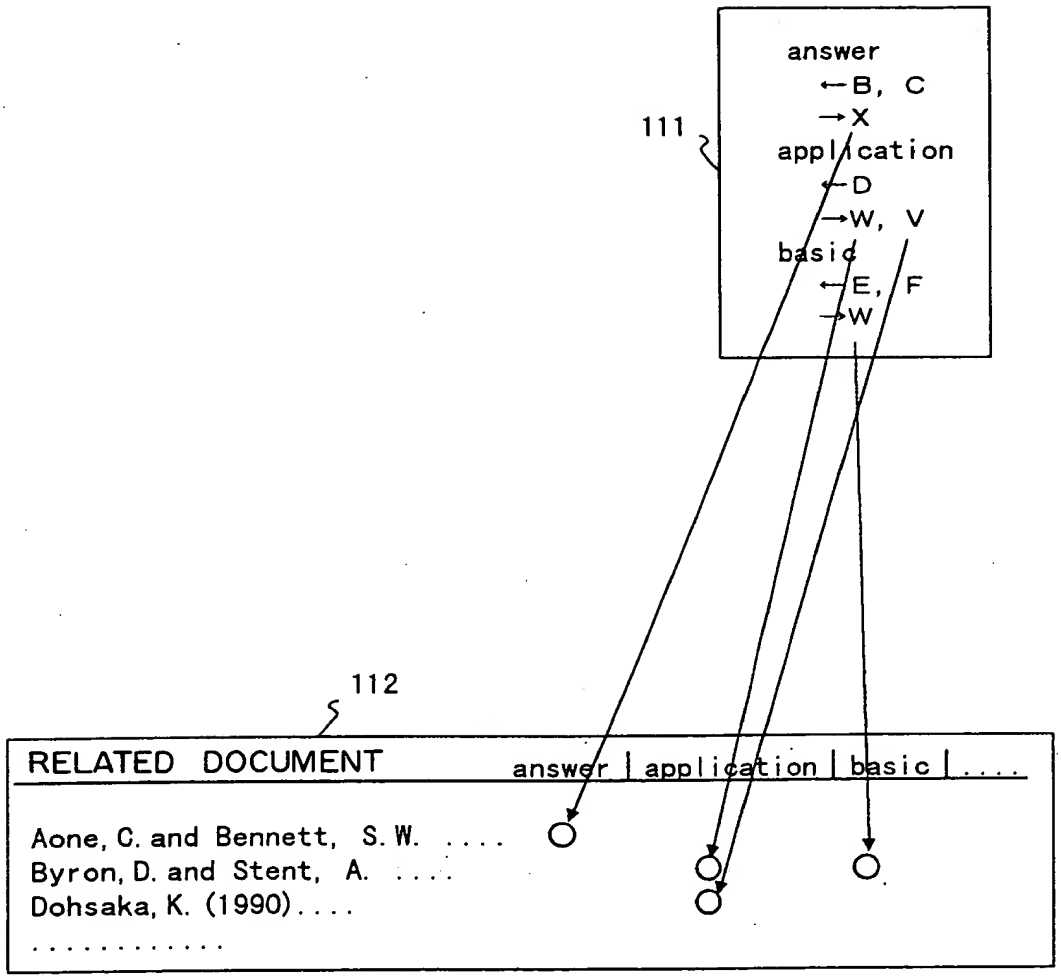

answer
←B, C
→X
111
application
←D
→W, V
basic
←E, F
→W
112
RELATED DOCUMENT
answer | application | basic | ....
Aone, C. and Bennett, S. W. ....
Byron, D. and Stent, A. ....
Dohsaka, K. (1990)....
.....

FIG. 12

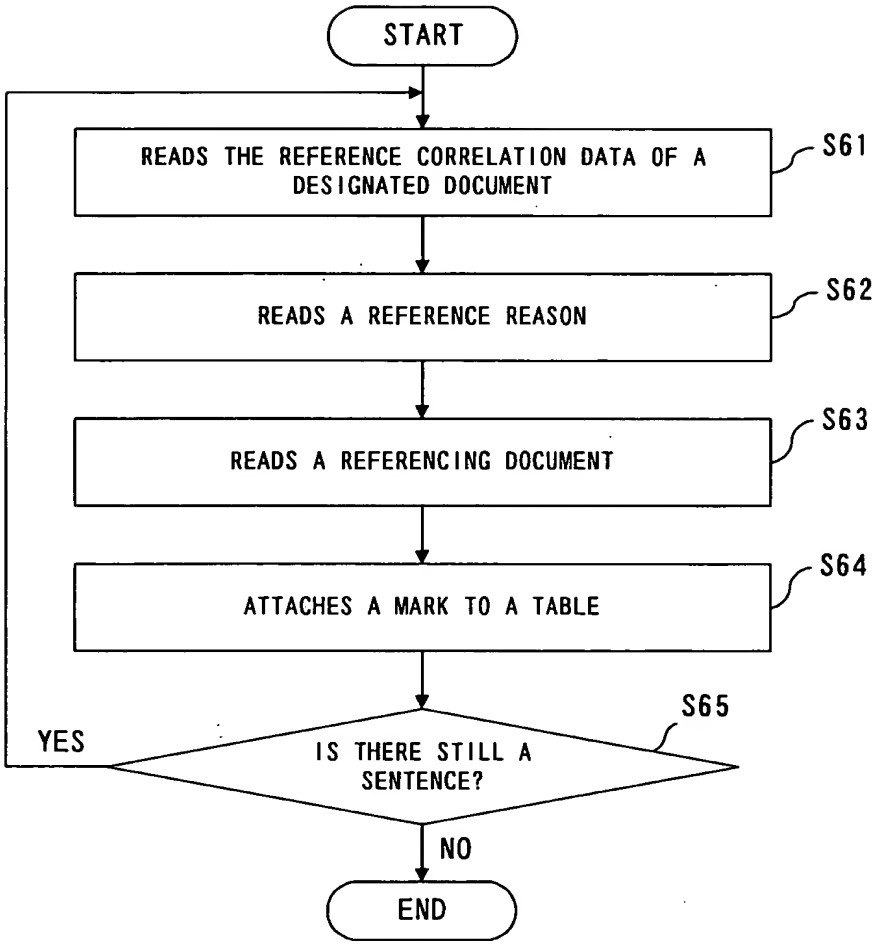

START
READS THE REFERENCE CORRELATION DATA OF A DESIGNATED DOCUMENT
S61
READS A REFERENCE REASON
S62
READS A REFERENCING DOCUMENT
S63
ATTACHES A MARK TO A TABLE
S64
IS THERE STILL A SENTENCE?
S65
YES
NO
END

FIG. 13

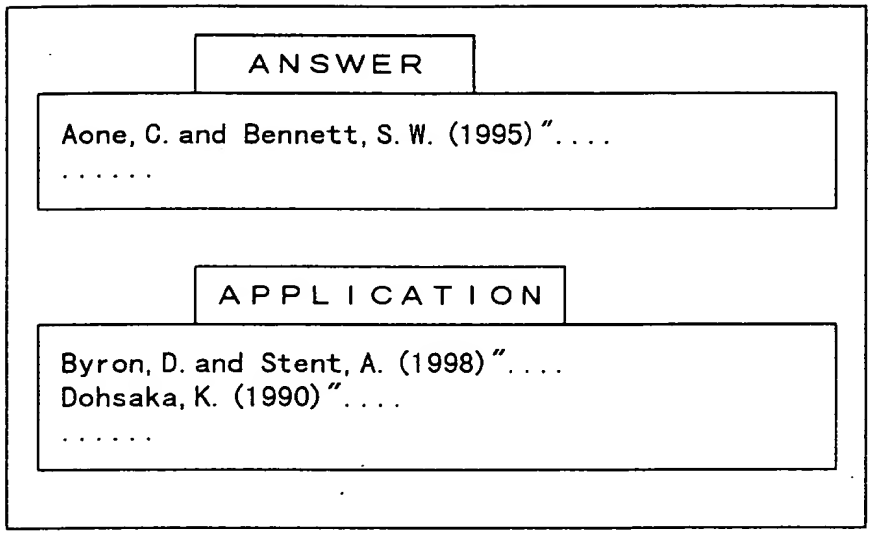

ANSWER
Aone, C. and Bennett, S. W. (1995)"....
.....
APPLICATION
Byron, D. and Stent, A. (1998)"....
Dohsaka, K. (1990)"....
.....

FIG. 14

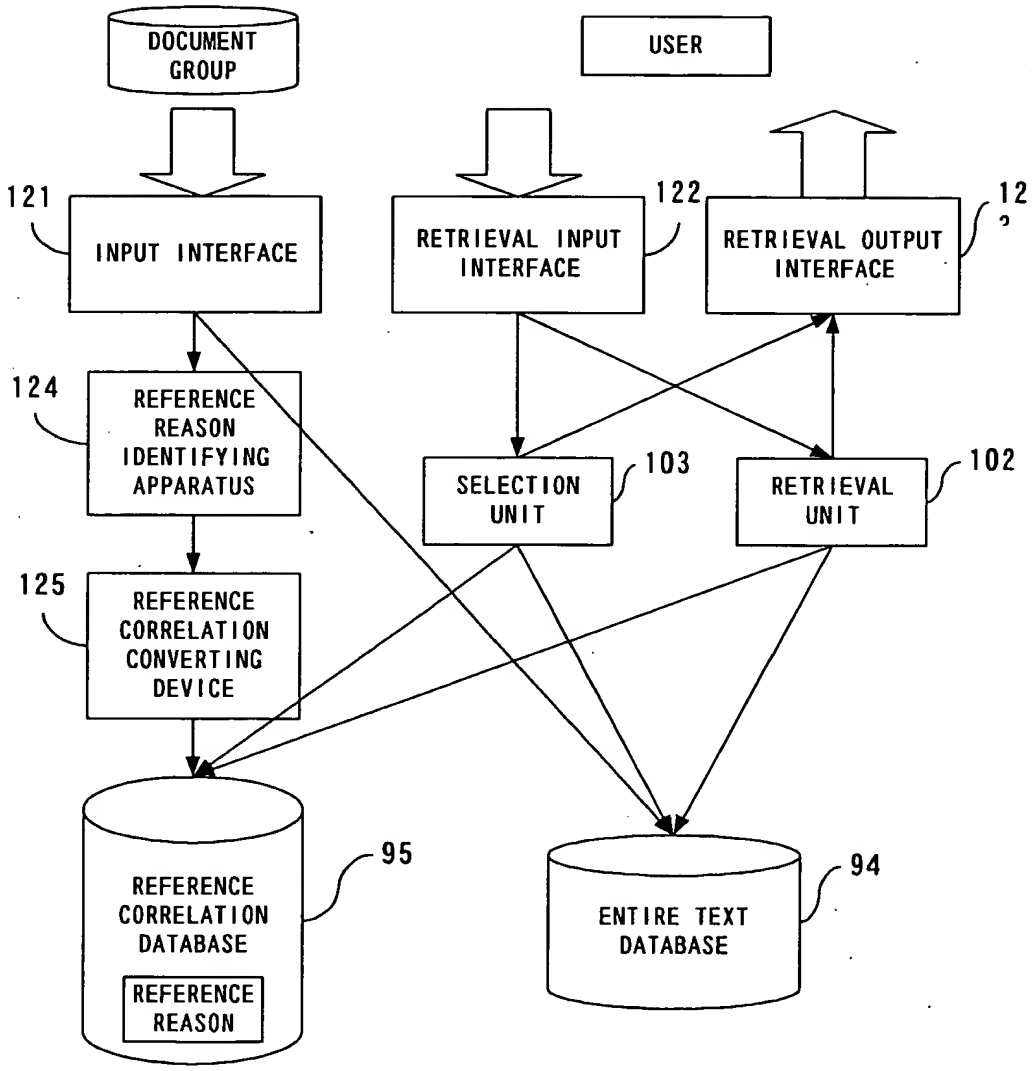

DOCUMENT GROUP
USER
121
INPUT INTERFACE
122
RETRIEVAL INPUT INTERFACE
RETRIEVAL OUTPUT INTERFACE
124
REFERENCE REASON IDENTIFYING APPARATUS
SELECTION UNIT
103
RETRIEVAL UNIT
102
125
REFERENCE CORRELATION CONVERTING DEVICE
95
REFERENCE CORRELATION DATABASE
REFERENCE REASON
94
ENTIRE TEXT DATABASE

FIG. 15

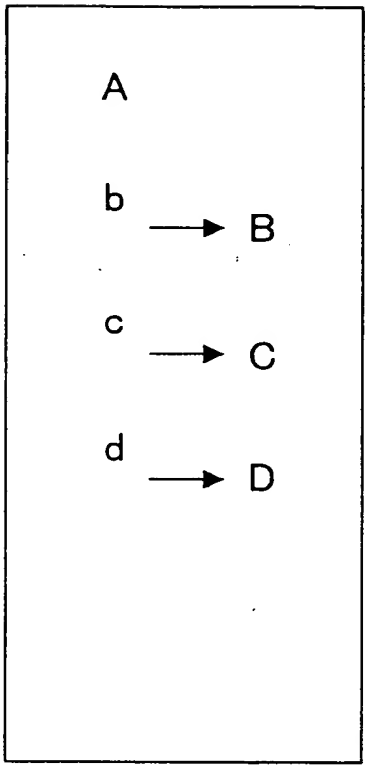


FIG. 16

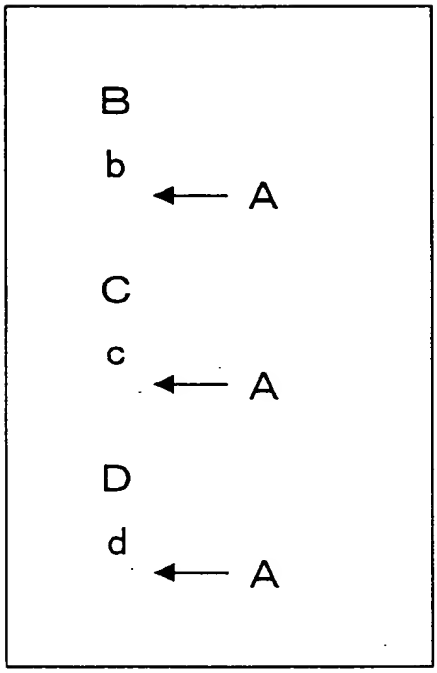


FIG. 17

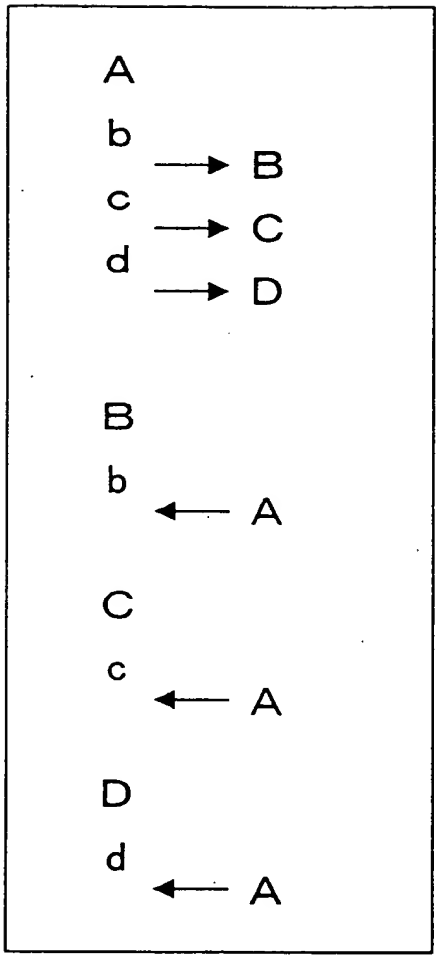


FIG. 18

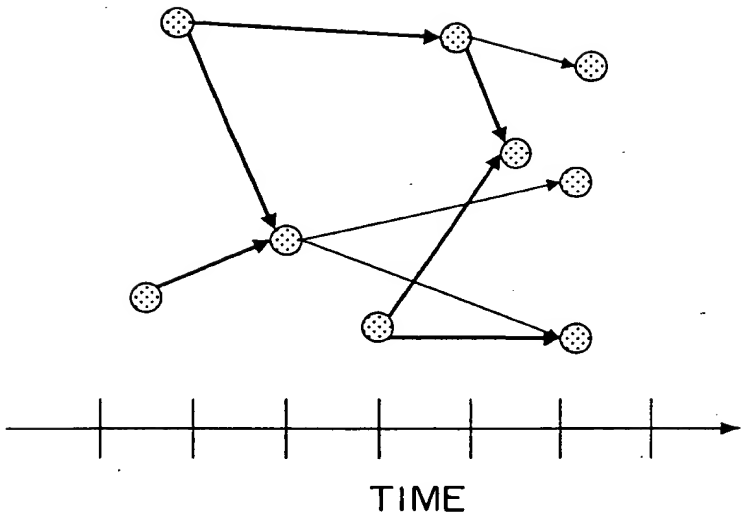


FIG. 19

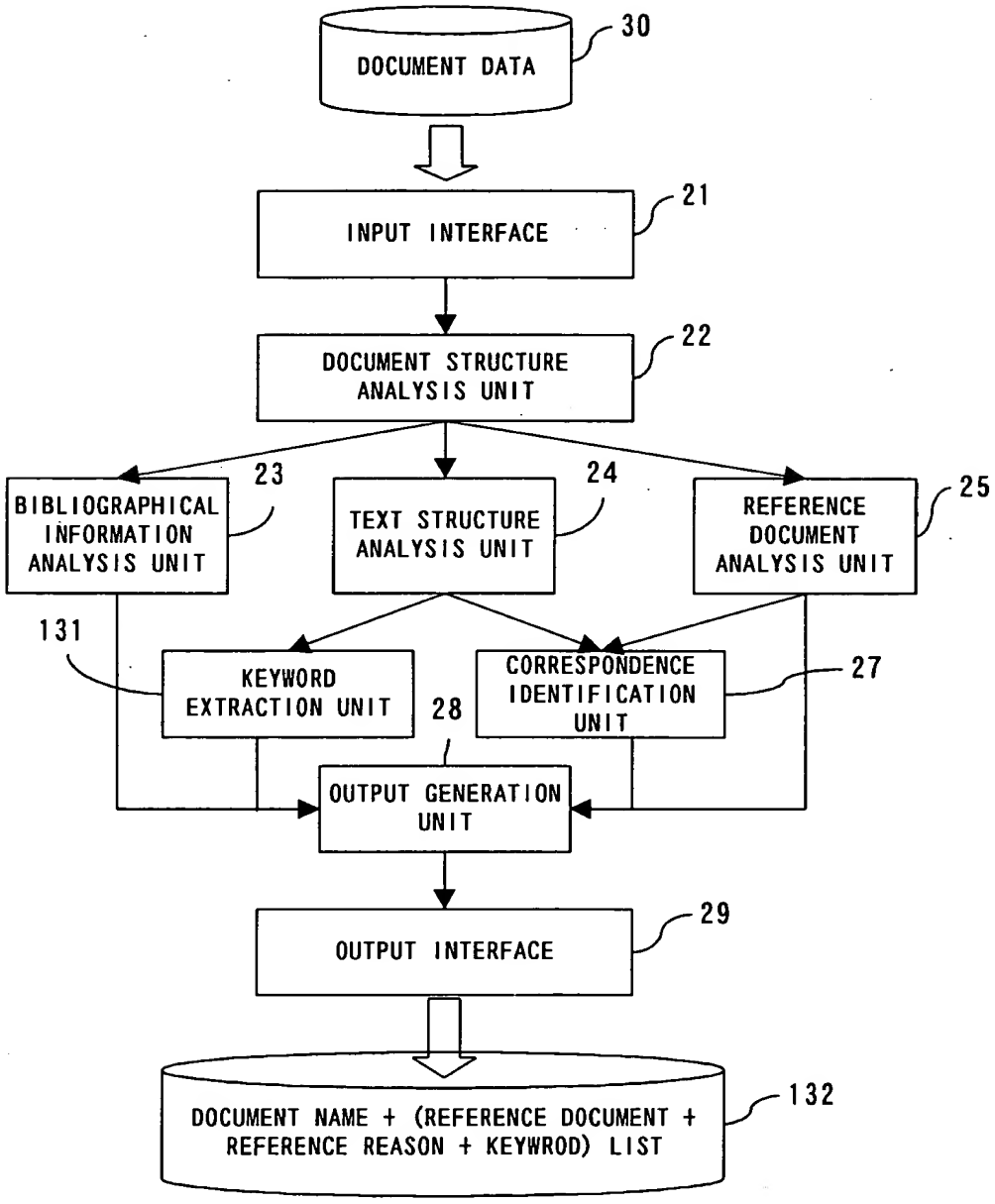

DOCUMENT DATA
30
INPUT INTERFACE
21
DOCUMENT STRUCTURE ANALYSIS UNIT
22
BIBLIOGRAPHICAL INFORMATION ANALYSIS UNIT
23
TEXT STRUCTURE ANALYSIS UNIT
24
REFERENCE DOCUMENT ANALYSIS UNIT
25
131
KEYWORD EXTRACTION UNIT
28
CORRESPONDENCE IDENTIFICATION UNIT
27
OUTPUT GENERATION UNIT
OUTPUT INTERFACE
29
DOCUMENT NAME + (REFERENCE DOCUMENT + REFERENCE REASON + KEYWROD) LIST
132

FIG. 20

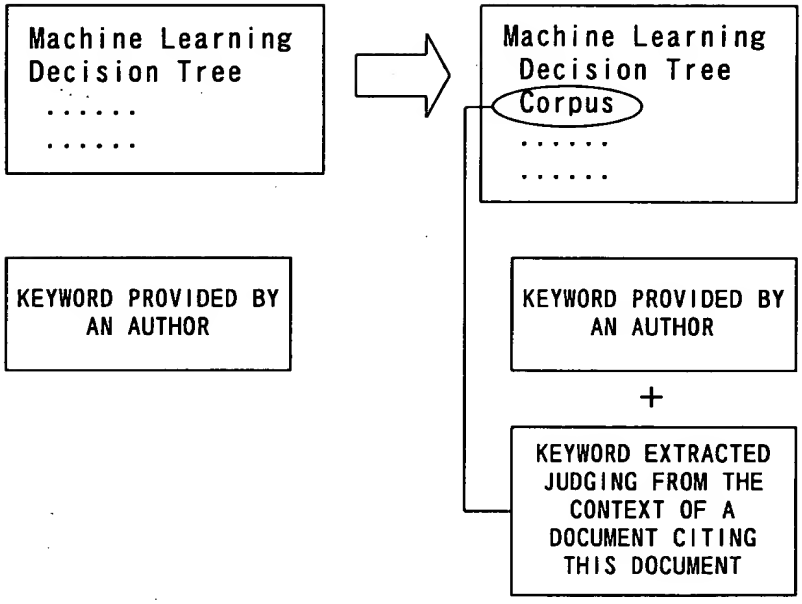
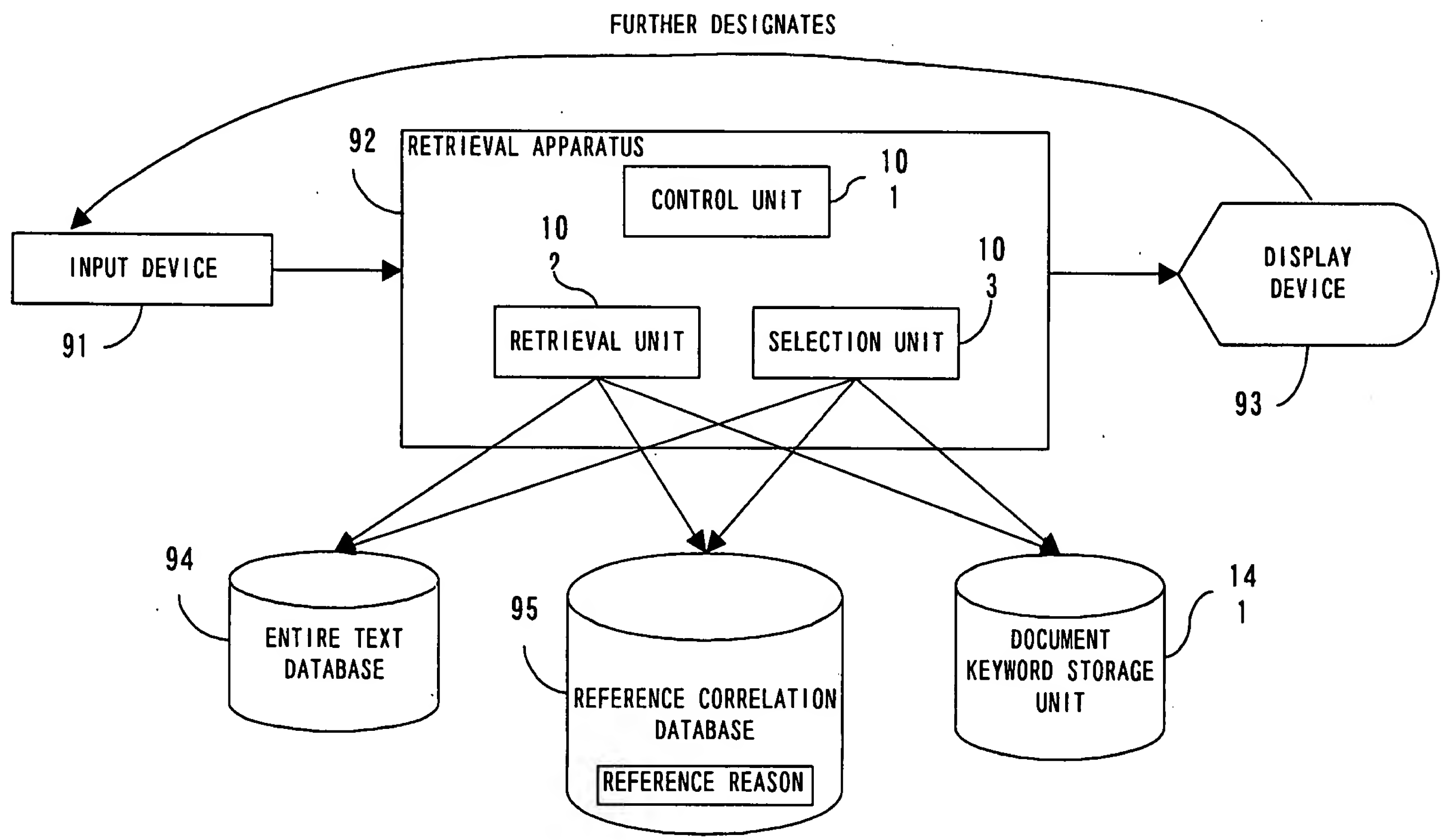

Machine Learning
Decision Tree
.....
.....
KEYWORD PROVIDED BY AN AUTHOR
Machine Learning
Decision Tree
Corpus
.....
.....
KEYWORD PROVIDED BY AN AUTHOR
+
KEYWORD EXTRACTED JUDGING FROM THE CONTEXT OF A DOCUMENT CITING THIS DOCUMENT

FIG. 21



F I G. 2 2

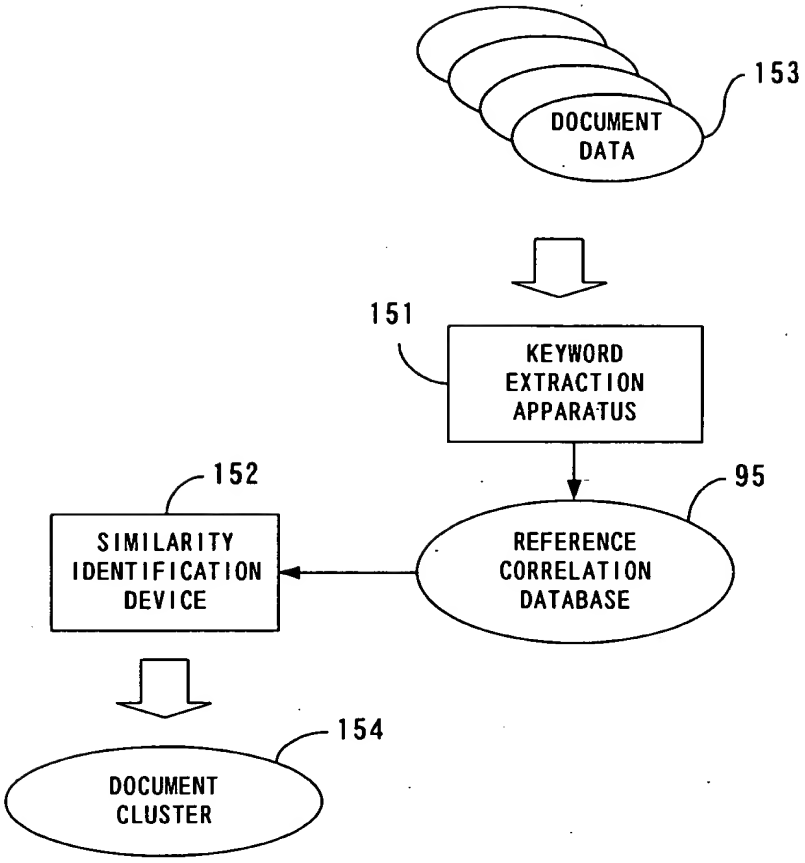

153
DOCUMENT DATA
151
KEYWORD EXTRACTION APPARATUS
152
SIMILARITY IDENTIFICATION DEVICE
95
REFERENCE CORRELATION DATABASE
154
DOCUMENT CLUSTER

FIG. 23

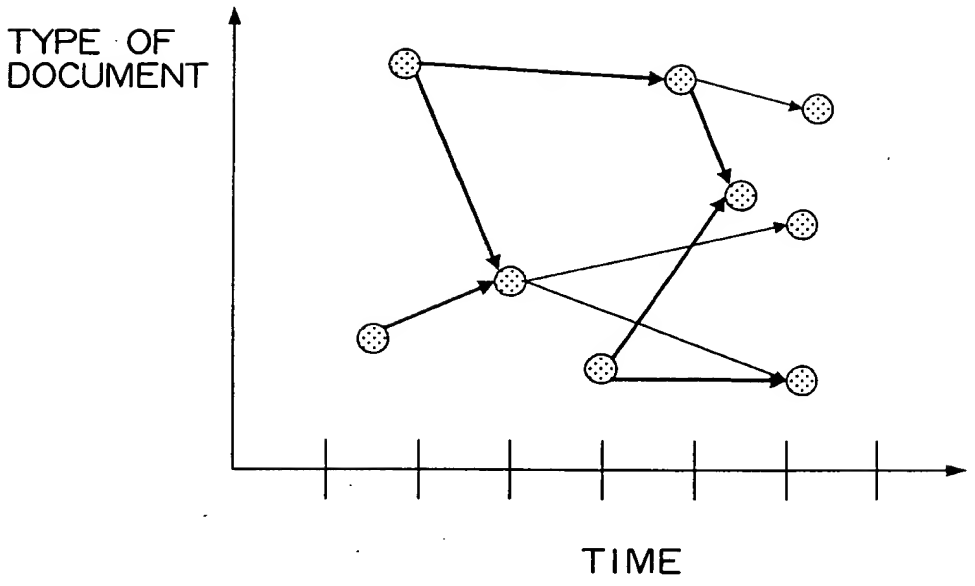


FIG. 24

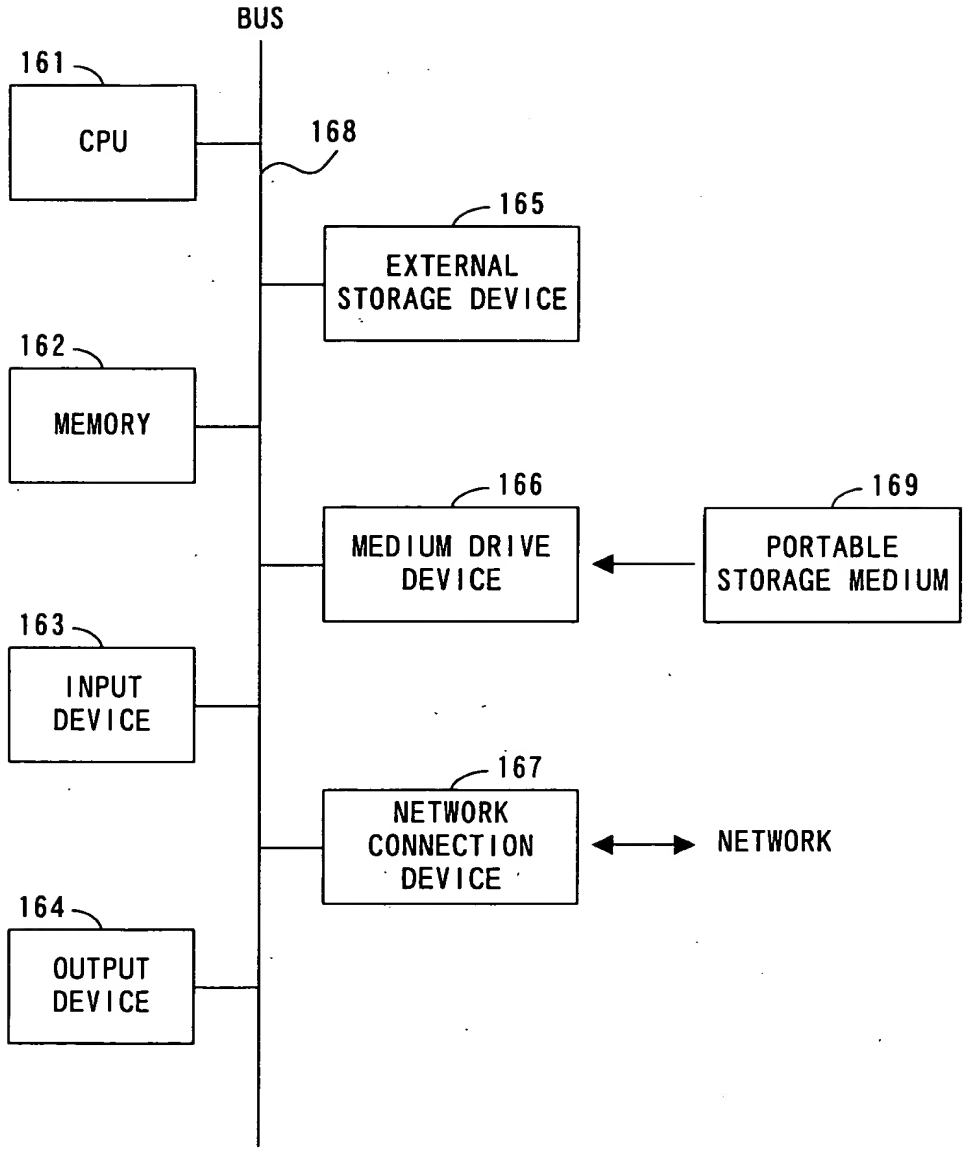

BUS
161
CPU
168
165
EXTERNAL STORAGE DEVICE
162
MEMORY
166
MEDIUM DRIVE DEVICE
169
PORTABLE STORAGE MEDIUM
163
INPUT DEVICE
167
NETWORK CONNECTION DEVICE
NETWORK
164
OUTPUT DEVICE

FIG. 25

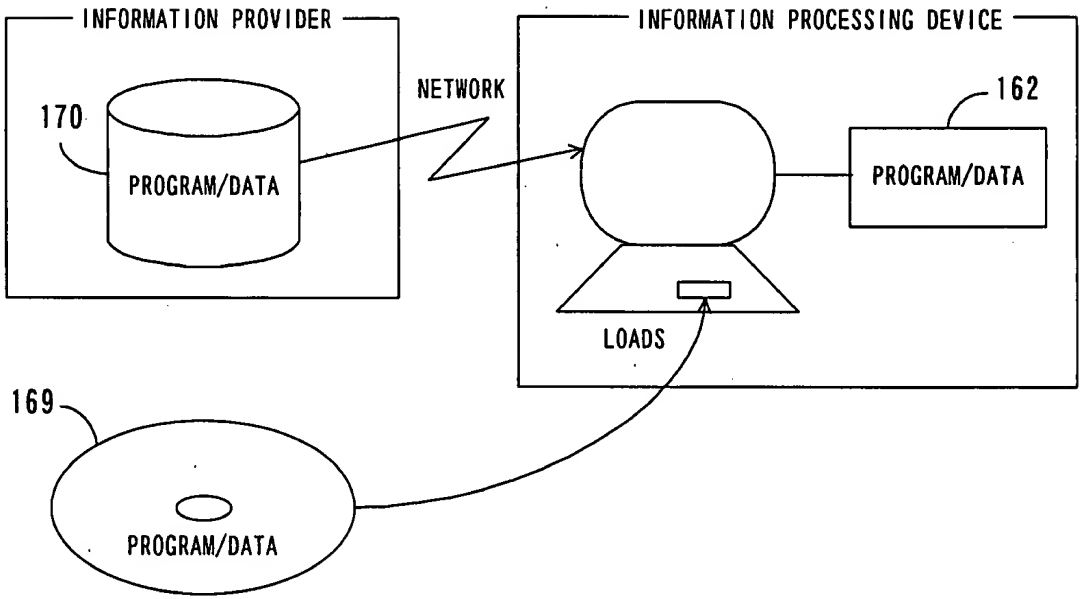

INFORMATION PROVIDER
170
PROGRAM/DATA
NETWORK
INFORMATION PROCESSING DEVICE
162
PROGRAM/DATA
LOADS
169
PROGRAM/DATA

FIG. 26